Mathematics 201X F01: Calculus II
Spring 2012

Instructor: John Rhodes

Office: 301B Chapman, 474-5445

E-mail: `j.rhodes@alaska.edu`

Office Hours: M F 10:30-11:30, W 2:00-3:00, and by appointment

Web page: `http://www.dms.uaf.edu/~jrhodes/M201.html`

Prerequisites: Math 200

Credit Hours: 4.0

Text: Calculus (early transcendental functions), 5th ed., by Larson and Edwards, Brooks/Cole; custom version available from UAF Bookstore, or `http://www.cengagebrain.com/micro/uafms`.

WebAssign: On-line homework system `https://webassign.net/login.html` Self-enroll, using class key `uaf 2769 5747`

Free Tutoring: Mathematics & Statistics Laboratory, 305 Chapman

Class Meetings: M W F 11:45-12:45; T 11:30-12:30; in 252 Duckering

In-class Hour Exams: Monday, February 27; Monday, April 16

Final Exam: 10:15-12:15, Wednesday, May 9

Course overview and goals: This course build on the material of Calculus I to give you a solid understanding of single-variable calculus. If focuses primarily on 3 topics: Applications of the integral, Techniques of computing integrals, and Sequences and Series. A fourth topic, parametric equations and polar coordinates, begins setting the stage for Calculus III, in which you work in more dimensions, and with different coordinate systems than the usual rectangular one. The material is this course is essential background for Calculus III, Differential Equations, and any course in math or the sciences that uses calculus for solving substantive problems.

The topics covered in the course are challenging in different ways – some involve developing geometric insight, some require good symbolic manipulations skills, and some require a deeper understanding of abstract ideas. While they all depend heavily on Math 200 background, they depend less on one another. The good side of this is that as each new topic begins, you are to some degree starting afresh, and will not be held back by any Math 201 material you failed to master. The bad side is that when the end of the course comes, you will be

expected to know everything, even though recent material has not reinforced what came at the beginning of the course.

Class meetings: The class will be run as an interactive lecture. That means that while I will be presenting material at the board, and you will be taking notes, I will also be asking for suggestions, ideas, and questions about the material as we go along. I don't expect 'correct' answers, but I do expect you to be actively following and participating — that makes the class more interesting for us all.

I'll begin each class by asking if any questions have come up from the last lecture or most recent homework. Please use this opportunity to get clarification on any points of confusion; your classmates will appreciate you asking the questions they are too shy to bring up. However, be aware that I will usually not discuss material from before the last class — you can see me in office hours for that, but I will want to keep the class meetings moving forward.

Although I will not formally take roll, regular class attendance is expected. If you miss a class, you should get notes from another student, and can find homework assignments posted on the course web page.

Homework: Homework using the WebAssign on-line system will be assigned daily, shortly after the class meeting. To stay current you should complete these assignments *before* the next class meeting. However, the formal due date will be at 12:00 noon 4 days after the assignment is made. This includes weekends, so for example, a Tuesday assignment is due on Saturday, and a Friday assignment is due Tuesday.

A handfull of additional homework problems will be assigned throughout the week, and collected on Friday to be graded by a human. These are likely to be more involved problems, and the presentation of your work will be taken into account in the grading. These assignments will be posted on the course web page.

I encourage you to work with others on all homework, but you must enter solutions in WebAssign or produce your written solution independently. You will learn nothing from simply copying someone's solution.

I will not accept *any* late homework that has not been cleared ahead of time or is not due to a genuine emergency (e.g., a death in the family).

Quizes and Exams: Short surprise quizzes will be given randomly throughout the semester, at a rate of about 1 per week. These will typically take 10-15 minutes, and have 2 short problems similar to recent homework. These serve two primary purposes 1) to encourage you to be present in every class and 2) to ensure that you stay current with the homework. If you expect to miss a class, you should talk to me in advance about having any potential quiz waived — you must have a good reason and, except in emergencies, you cannot get retroactive approval.

The two midterm exams are not cummulative; they will cover only material since the last exam. The final is cummulative, but also emphasizes material after the second midterm. No make-up exams will be given without prior approval, except in extreme circumstances (e.g., family death, documented illness, etc.)

Grades:

Your performance will be evaluated based on 5% quizzes, 5% WebAssign homework, 5% other homework, 25% first midterm exam , 25% second midterm exam, 35% final exam.

Course grades will be determined according to the following cutoffs:

$$A \geq 90\%,$$
$$B \geq 80\%,$$
$$C \geq 70\%,$$
$$D \geq 60\%.$$

I reserve the right to move the cutoff points downward if particular exams turn out to be unexpectedly difficult. Note that you are not in competition with your peers – everyone in the class may get an A, or everyone may get an F.

Tutoring:

You are encouraged to use the free, walk-in tutoring offered in the Math Lab in Chapman 305. Hours will be announced, and posted on the door.

Calculators:

I have no strong feelings on whether you use a calculator when doing homework. As long as you are sure you have the skills to do all calculations by hand, it is fine for you to use technology as a time saver. However, *no calculators will be allowed on any examinations or quizzes.* This will ensure that testing conditions are equal for everyone.

University and Department Policies:

Your work in this course is governed by the UAF Honor Code. The Department of Mathematics and Statistics has specific policies on incompletes, late withdrawals, and early final exams which can be found at

`http://www.dms.uaf.edu/dms/Policies.html`.

If you have any disabilities that I should know about, you should bring them to my attention soon so that we can work with the Office of Disability Services to set up any necessary accommodations.

Tentative Schedule

Week 0-1	Jan. 20 – 27	Chapter 7: Applications of Integration, Areas and Volumes
Week 2	Jan. 30 – Feb. 3	Chapter 7: Applications of Integration, Arc Length, Surface Areas, Work
Week 3	Feb. 6 – 10	Chapter 7: Applications of Integration, Moments, Centers of Mass, Centroids, Fluid Pressure
Week 4	Feb. 13 – 17	Chapter 8: Integration techniques, Basic Rules, Int. by Parts, Trigonometric Integrals
Week 5	Feb. 20 – 24	Chapter 8: Integration techniques, Trigonometric Substitutions, Partial Fractions, Use of Tables
Week 6	Feb. 27 – March 2	EXAM 1 Monday Chapter 8: Limits, L'Hopitals Rule, Improper Integrals
Week 7	March 5 – 9	Chapter 9: Infinite Series Sequences, Series, Convergence, Integral test
	March 12 –16	SPRING BREAK
Week 8	March 19 – 23	Chapter 9: Infinite Series, Comparison Tests, Alternating Series,
Week 9	March 26 – 30	Chapter 9: Infinite Series Ratio and Root tests, Taylor Polynomials and Approximations
Week 10	April 2 – 6	Chapter 9: Infinite Series Power Series, Taylor Series
Week 11	April 9 – 13	Catch-up and review on Series
Week 12	April 16 – 20	EXAM 2 Monday; Chapter 10: Parametric Equations
Week 13	April 23 – 27	Chapter 10: Polar Coordinates Area and ArcLength SPRINGFEST
Week 14	April 30 – May 4	Additional Applications, Review